

METHODS AND APPARATUS FOR COOLING GAS  
TURBINE ENGINE ROTOR ASSEMBLIES

ABSTRACT OF THE DISCLOSURE

A method facilitates assembling a rotor assembly for gas turbine engine. The method includes providing a first rotor blade including an airfoil, a platform, a shank, an internal cavity, and a dovetail, wherein the airfoil extends radially outward from the platform, which includes a radially outer surface and a radially inner surface, the shank extends radially inward from the platform, and the dovetail extends from the shank, such that the internal cavity is defined by the airfoil, the platform, the shank, and the dovetail. The method also includes coupling the first rotor blade to a rotor shaft such that during engine operation, cooling air is channeled from the cavity through an impingement cooling circuit for impingement cooling the first rotor blade platform radially inner surface, and coupling a second rotor blade to the rotor shaft such that a platform gap is defined between the first and second rotor blade platforms.